Notice No.9

Rules and Regulations for the Classification of Naval Ships, January 2022

The status of this Rule set is amended as shown and is now to be read in conjunction with this and prior Notices. Any corrigenda included in the Notice are effective immediately.

Please note that corrigenda amends to paragraphs, Tables and Figures are not shown in their entirety.

Issue date: November 2022

Amendments to	Effective date	IACS/IMO implementation (if applicable)
Volume 1, Part 4, Chapter 1, Section 2	Corrigenda	N/A
Volume 1, Part 4, Chapter 2, Sections 5 & 10	Corrigenda	N/A
Volume 1, Part 4, Chapter 3, Section 2	Corrigendum	N/A
Volume 1, Part 5, Chapter 2, Section 2	Corrigendum	N/A
Volume 1, Part 5, Chapter 3, Sections 4 & 5	Corrigendum	N/A
Volume 1, Part 6, Chapter 2, Section 4	Corrigendum	N/A
Volume 1, Part 6, Chapter 6, Section 7	Corrigenda	N/A
Volume 2, Part 8, Chapter 1, Section 2	Corrigenda	N/A
Volume 2, Part 8, Chapter 2, Section 2	Corrigenda	N/A

Volume 1, Part 4,
Chapter 1
Military Design

■ *Section 2*
Survivability

2.1 General

2.1.6 The **assessment phase** looks in more detail at the vulnerability of the ship and uses explicit calculations to assess the capability of the ship based upon the relevant effects of threats such as blast pressure or fragment size. It is not necessary to define the actual weapon, just the consequences or effects of threats. A threat can produce a variety of effects, the manner in which the rules currently address these effects is detailed in *Vol 1, Pt 4, Ch 2 Military Load Specificatio*n. In naval ship classification, notations are used to ~~donate~~ denote that a calculation for a particular threat has been reviewed. Currently, these are concerned with structural aspects only, though some aspects of machinery are indirectly addressed through other notations such as propulsion machinery redundancy, **PMR**, steering gear machinery redundancy, **SMR** and fire safety, **FIRE**.

■ *Section 5*
Underwater explosion (shock)

5.6 Seat design

5.6.7 Stress and strain are to be assessed against criteria appropriate for the seat material and loading rate. The first fundamental mode of vibration of the seat including equipment is to be greater than 10 times the shock mount rated natural frequency to provide a sufficiently rigid base for the shock mount. In the absence of specific information, for steel, the ~~following~~ data in *Table 2.5.1 Allowable stresses for seat design* may be used:

Table 2.5.1 Allowable stresses for seat design

	Tension	Bending	Shear
Plastic deformation of seats	1,3 σ_{ps}	1,3 σ_{ps}	1,0σ_{ps}
Long loading times ≥ ~~0,5~~ 5 ms (elastic deformation only)	1,0σ_{ps}	1,0σ_{ps}	0,8σ_{ps}
Short loading times <~~0,5~~ 5 ms (elastic deformation only)	1,2σ_{ps}	1,5σ_{ps}	0,9σ_{ps}
where $\boldsymbol{\sigma}_{\mathbf{ps}}$ = static 0,1% proof stress The values in this Table are applicable to mild and high tensile steel grades up to a yield strength of 400MPa.			

Existing Table 2.5.1 Shock mount characterisation has been renumbered Table 2.5.2.

■ *Section 10*
Aircraft operations

10.1 General

10.1.6 These Rules assume that the aircraft are fitted with oil/gas dampers and pneumatic ~~types~~ tyres, different under-carriage arrangements will be specially considered.

Volume 1, Part 4,
Chapter 3
Special Features

■ *Section 2*
Vehicle decks and fixed ramps

2.4 Secondary stiffening

Table 3.2.4 Design load cases for primary and secondary stiffening and supporting structure

Symbols
n = tyre correction factor in ~~*Table 3.2.3 Secondary stiffener requirements*~~ *Table 3.2.2 Tyre correction factor, n*

Volume 1, Part 5,
Chapter 2
Environmental Conditions

■ *Section 2*
Wave environment

2.4 Service area factors

2.4.5 For restricted Service Area Notation **SAR** the service area factor is to be derived by combining the service areas factors for each sea area using the following formula:

$$\cancel{f_s = \text{In}\left(\sum_{i=1}^{n} P_1 ef_{si}\right)}$$

$$f_s = \text{In}\left(\sum_{i=1}^{n} P_1\, e^{fsi}\right)$$

Volume 1, Part 5,
Chapter 3
Local Design Loads

■ *Section 4*
Impact loads on external plating

4.2 Bottom impact pressure, *IP*$_{bi}$

4.2.1 The bottom impact pressure due to slamming, *IP* $_{bi}$, is to be derived using the method given below. This method will produce impact pressures over the whole of the underwater plating region:

$$\cancel{u = \left(\frac{Z_{wl}^2}{2m_0} + \left(\frac{V_{th}^2}{2m_1}\right)\right)}$$

$$u = \left(\frac{Z_{wl}^2}{2m_0} + \left(\frac{V_{th}^2}{2m_1}\right)\right)$$

4.5 Bottom impact pressure for ships operating in the planing regime

4.5.1 The equivalent static bottom impact pressure due to slamming, P_{dl}, at the LCG for planing hull forms is given by the following expression:

$$P_{dl} = \frac{k_{dl}\,\Delta\, f_{d1}\,(1 + a_{cg})}{L_{WL}\,G_S} \text{ kN/m}^2$$

where

K_{dl} = hull form pressure factor

■ *Section 6*
Other load loads

6.4 Loads for masts

6.4.4 The wind force, F_w, on the mast structure is given by:

F_w = $A\ p\ C_f$ kN

where

p = wind pressure, in kN/m^2

Volume 1, Part 6,
Chapter 2
Design Tools

■ *Section 4*
Vibration control

4.3 Natural frequency of plate

4.3.1 The natural frequency of ~~an~~ homogeneous clamped plate in air is given by the following:

$$\cancel{F_{air} = 5537\frac{t_p}{ls}\sqrt{\left(\frac{1000l}{s}\right)2 + \left(\frac{s}{1000l}\right)2 + 0{,}6045}\ \text{Hz}}$$

$$F_{air} = 5537\frac{t_p}{ls}\sqrt{\left(\frac{1000l}{s}\right)^2 + \left(\frac{s}{1000l}\right)^2 + 0{,}6045}\ \text{Hz}$$

Volume 1, Part 6,
Chapter 6
Material and Welding Requirements

■ *Section 7*
Inspection and testing procedures

7.2 Test types

Table 6.7.1 Testing requirements

Item to be tested	Testing Procedure
~~chain locker~~	~~Hose (2)~~

Volume 2, Part 8,

Chapter 1
Steam Raising Plant and Associated Pressure Vessels

■ *Section 2*
Cylindrical shells and drums subject to internal pressure

2.1 Minimum thickness

2.1.2 The formula in *Vol 2, Pt 8, Ch 1, 2.1 Minimum thickness 2.1.1* is applicable only where the resulting thickness does not exceed half the internal radius, i.e. where ~~R_o~~ t is not greater than ~~1,5~~ 0,5 R_i.

Volume 2, Part 8,
Chapter 2
Other Pressure Vessels

■ *Section 2*
Cylindrical shells and drums subject to internal pressure

2.1 Minimum thickness

2.1.2 The formula in *Vol 2, Pt 8, Ch 2, 2.1 Minimum thickness 2.1.1* is applicable only where the resulting thickness does not exceed half the internal radius, i.e. where ~~R_o~~ t is not greater than ~~1,5~~ 0,5 R_i.

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